

The skin of the body generally is covered with numerous brown blotches, separated by rather sharp outlines from the broad white reticulum. The centres of the blotches are rather darker, but they do not show the trefoil pattern observed by Mr. Lydekker in the bull. Nor do they show the white centres conspicuous in the blotches along the sides of the Nubian male figured by Mr. Lydekker (P. Z. S. 1904, vol. i. pl. ix.). The general resemblance of the Nigerian female to the Nubian form is rather more striking than Mr. Lydekker found in the case of the male. There is no trace of the large white patch round the front of the neck where it joins the head, looking as if a white muffler had been tied round the neck and the ears, which forms so conspicuous a character in the Kerdofan Giraffes (*G. c. antiquorum*) now exhibited in the Society's Collection.

I am inclined to think that the evidence afforded by this young female strengthens belief in the existence of a distinct race of Nigerian Giraffes, a race closer to the Nubian Giraffe than to any other form, but I do not think that as yet there is complete evidence for identifying this female Giraffe and Captain Gosling's bull with the *G. c. peralta* of Thomas. It is certainly important that all examples of which exact localities are known should be carefully compared with other forms.

3. Notes on Ento-Parasites from the Zoological Gardens, London, and elsewhere. By A. E. SHIPLEY, M.A., F.R.S., Fellow and Tutor of Christ's College, Cambridge, and University Lecturer in the Morphology of the Invertebrata.

[Received February 27, 1905.]

(Text-figure 52.)

The collections on which the following notes were made came chiefly from the animals in the Society's Gardens. The new species of *Porocephalus* was, however, kindly sent me by Dr. von Linstow of Göttingen. The South-American parasites I owe to the kindness of Mr. Rosenberg, of Haverstock Hill.

TREMATODA.

*PARAGONIMUS WESTERMANI* (Kerb.).

*Distomum westermani* Kerbert, 1878, Zool. Anz. i. p. 271; Arch. mikr. Anat. xix. 1881, p. 529.

*Distoma ringeri* Cobb, 1880.

*Distoma pulmonale* Baelz, 1883, Berl. klin. Wochschr. p. 234.

*Distoma pulmonis* Suga, 1883.

*Mesogonimus westermani* Raill. 1890.

Three specimens from the lungs of a Tiger in the Zoological Gardens.

This species was first described by Kerbert from a Royal Tiger in the Gardens at Amsterdam. He states they were found, two at a time, in pockets in the lungs, which were mostly situated near the surface. It is a not uncommon human parasite in the East, and was first found by Ringer in the bronchi of a man who came from Formosa. It is met with in China and Korea, and is especially common in Japan, where it gives rise to much pulmonary mischief. It is also recorded from North America, probably imported. Besides the tiger and man, it has been recorded from the pig, the dog, and the cat.

### ACANTHOCEPHALA.

#### *ECHINORHYNCHUS SPIRULA* Olfers.

Diesing, Syst. Helm. ii. p. 21.

A considerable collection of specimens of this species of *Echinorhynchus* was sent me from the following animals:—(i.) *Pero-dicticus potto* Bosman, or Bosman's Potto, found in the West Coast of Africa, the Gold Coast, Sierra Leone, and the Gaboon; (ii.) *Lemur coronatus* Gray, the Crowned Lemur, from Madagascar; and (iii.) *Lemur brunneus* v. d. Hoeven, the Black-headed Lemur. The latter is the name given in the 'Catalogue of the Animals in the Zoological Gardens,' but I have been unable to find it or any synonym for it in Trouessart's great catalogue\*.

This species of parasite is recorded in von Linstow's 'Compendium der Helminthologie' as occurring in *Inuus ecaudatus* Geoffr. (= *Pithecius inuus* L., vide Trouessart's 'Catalogus Mammalium,' Berlin, 1898-1899, p. 26), from Gibraltar and Northern Africa, and from *Cebus fatuellus* Erxleben, from S. America. Baillet† points out that Leuckart considered this species may be the same as the *E. hominis* Lambl., which was found, in one instance only, in the small intestine of a child of nine years of age who died at Prague in 1857.

### PENTASTOMIDA.

#### *POROCEPHALUS CROTALI* (Humboldt).

*Echinorhynchus crotali* Humboldt.

*Distoma crotali* Humboldt.

*Polystoma proboscideum* Rudolphi.

*Linguatula proboscidea* van Beneden.

*Pentastomum moniliforme* Diesing, Megnin (in parte).

*Linguatula quadriuncinata* Meyer.

*Pentastomum imperatoris* Macalister.

*Pentastomum proboscideum* Rudolphi.

\* [The Lemurs which have been almost continuously exhibited at the Gardens for many years under the name of *Lemur brunneus* v. d. Hoeven are almost certainly identical with *L. mongoz* var. *nigrifrons* M.-Edw. et Grandidier. See Slater, P. Z. S. 1871, p. 231.—P. C. M.]

† 'Zoologie Médicale et Agricole.' Paris, 1895.

Larval forms :—

*Pentastomum subcylindricum* Diesing.

*Pentastomum clavatum* Wyman.

Three specimens, the largest measuring 11 cm., were taken from the lungs of a *Zamenis mucosus* Boul., a snake which occurs from Transcaspia and Afghanistan, across Asia, to the sea-board of China and to the Malay Peninsula and Java. In my "Attempt to revise the Family Linguatulidæ" (Archiv. Parasit. i. 1898, p. 52) I have given a list of the numerous hosts which harbour this form.

There were also some encysted larval forms coiled up in pieces of the liver or in fragments of membranous tissue which looked like mesentery. In the relationship of the mouth to the hooks and in the general appearance of the head they resemble *P. crotali*, but they have an unusual number of annuli, quite fifty. These annuli in the Pentastomida are obviously very variable characters, and they do not correspond with any true segmentation. It has sometimes occurred to me that their number depends upon the closeness of the coil in which the larva lies. These larvæ, at any rate, were very closely coiled.

*POROCEPHALUS MONILIFORMIS* (Diesing).

*Pentastoma moniliformis* Diesing.

A single specimen, somewhat injured, from *Python* sp.

The club-shaped head and the moniliform character of the segments and the pointed tail were very marked. The number of segments, counting the terminal joint, was 28, thus agreeing with Diesing's figure\*.

*POROCEPHALUS HERPETODRYADOS*, n. sp.

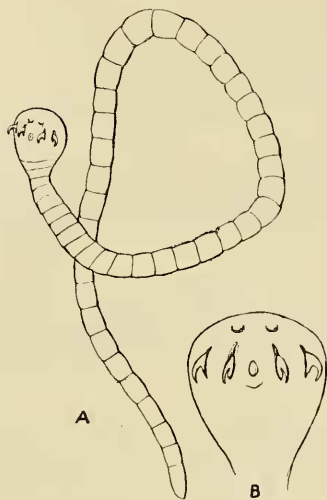
*Diagnosis*.—Length averaging about 10 cm., breadth 2·5 to 3 mm. in the body, in the head 4·5 to 5 mm. About 50 annuli. There are no depressions between these, or hardly any; the body is smooth, and although the segments are quite distinct they pass smoothly into one another like the nodes of an *Equisetum*. The head is separated from the body by a distinct neck which is faintly annulated, as is the posterior part of the head. The four hooks are in one straight line, and the posterior border of the oval slit-like mouth is on a line with the posterior border of the hooks. The hooks are simple, there is no accessory hooklet. There are four conspicuous papillæ just in front of the hooks.

The presence of a distinct neck associates this species with *P. annulatus* Baird and *P. tortus* Shipley, but the neck is not so distinct from head and body as in the former, or so short as in the latter of these two species. The hooks, which have no accessory hooklet, have a well-developed flange as in *P. subuliferus* Lekt. and many others. The hooks are strongly curved, and under the

\* Denk. Ak. Wien, xii. 1856, p. 31.

microscope not very sharp. The head is rounded dorsally and flattened ventrally; it slopes down gradually to the neck.

Text-fig. 52.



*Porocephalus herpetodryados*.—A. Entire worm. B. Head, much magnified.

This form came from a specimen of *Herpetodryas carinatus*, probably from the lungs. The particular specimen was killed in Honduras, but this species of snake extends in South America east of the Andes to the Rio de la Plata, and is found in Trinidad, Guadeloupe and St. Vincent.

## NEMATODA.

### *ANGIOSTOMUM SERPENTICOLA* von Linstow.

v. Linstow, Centrbl. Bakter. xxxvii. 1904, p. 678.

Von Linstow describes the females which in this genus become hermaphrodite whilst living in the lungs and pleural cavities of Amphibia, Reptiles, and more rarely Birds.—The larvæ develop in or on the earth, and form a *Rhabditis*-like bisexual generation in those species whose life-history is known. These specimens were viviparous, the uterus being crowded with young embryos.

Numerous specimens from the lungs of the "Hog-nosed" Snake, *Heterodon platyrhinus*.

### *ASCARIS ANGUSTICOLLIS* Molin.

Molin, SB. Ak. Wien, xl. p. 336.

v. Drasche, Verh. Ges. Wien, 1883, p. 209.

Mobius's specimens came from the coats of the intestines of *Buteo vulgaris*, the Buzzard. Von Drasche gives two views of the

head. My specimens come from the intestines of the *Helotarsus ecaudatus*, the "Berghaan" or "Bateleur" Eagle.

*ASCARIS CAPSULARIA* Rud.

*Filaria piscium* Leuck.

Diesing, Syst. Helminthum, ii. p. 163.

Leuckart, Mensch. Parasit. ii. p. 98.

Zschokke, Arch. Biol. 1884, p. 1.

Von Linstow, Arch. Naturg. 1878, p. 236, 1880, p. 45, & 1884, p. 127.

Numerous specimens of the larvæ of this form were given me by Dr. Harmer. The young Nematodes were partly free and partly encapsuled, and in both cases they were much coiled. They were found in the tissues of a Scabbard-fish (*Lepidopus caudatus*), and are labelled "Portugal, Dec. 1903."

This species has been described from *Lepidopus argyreus* Cuv., *Gadus morrhua*, *Aphanopus carbo*, *Scomber scomber*, *Lophius piscatorius*, *Trigla gurnardus*, *Cyclopterus lumpus*, and many other fishes.

*ASCARIS LUMBRICOIDES* L.

Two smallish specimens, one male and one female, were taken from the nostril of a Chimpanzee (*Troglodytes anthropopithecus*) in the Zoological Gardens.

*FILARIA FOVEATA* Schneider.

Schneider, Monographie der Nematoden, 1866.

My specimens were sent me by Mr. Rosenberg, the naturalist, of Haverstock Hill, London; they were found in the orbit—"entre craneo y cuero"—of an *Asio brachyotus*, shot at Tucumán in the Argentine Republic. Schneider records specimens from the same bird, which he calls by the old name of *Egolius brachyotus*, but he does not mention in what part of the bird they were found. In the British Museum Catalogue the bird is registered under the name *Asio accipitrinus*.

*FILARIA PHYSALURA* (Bremser).

*Menapetalonema physalurum* Bremser.

Molin, SB. Ak. Wien, xxviii. 1858, p. 412.

Diesing, SB. Ak. Wien, xlii. 1861, p. 710.

This species has been recorded from *Alcedo amazona* Latham, from the body-cavity of both the thoracic and abdominal regions. My specimens are from the abdominal region—"en el vientre"—of a male *Ceryle torquata* shot at Tucumán in Argentina. The specimens were sent me by Mr. Rosenberg, the naturalist, of Haverstock Hill, N.W.

*FILARIA QUISCALI* von Linstow.

Von Linstow, Arch. Naturg. Jahrg. 1904, Bd. i. p. 300.

Dr. von Linstow, to whom I sent the Nematodes mentioned in

the 'Proceedings' \* of last year, which were taken from the brain of the *Quiscalus versicolor* Vieillot, has described the parasite as a new species. Unfortunately the specimens were but fragments, bearing no head. The tail end is rounded. The breadth 0·21 mm. The body is uncommonly soft. The cuticle is smooth, not ringed. The eggs are 0·029 mm. long and 0·021 mm. broad.

These Nematodes were found in the hinder part of both cerebral hemispheres. They formed a tangled mass lying below the pia mater. "The bird was reported to have dropped down suddenly from its perch 'in a fit.'"

The position of these Nematodes in the brain is a very unusual one. Dr. von Linstow mentions that the only case known to him is that of *Filaria helicina*, found in the brain of *Plotus ankanga* from Florida.

#### *SPIROPTERA* sp. ?

A number of larvæ identified by Dr. von Linstow as belonging to some species of *Spiroptera* were taken from *Centetes ecaudatus*. It is unfortunate that it was impossible to determine the species of this parasite, since, so far as I am aware, very little is known about the parasites of *Centetes*. All but one or two of the specimens in question were encapsuled in membranous tissue, probably peritoneal.

#### *List of Hosts with their Parasites described in the foregoing Paper.*

##### TREMATODA.

| Host.                     | Parasite.                              | Position in host. |
|---------------------------|----------------------------------------|-------------------|
| <i>Felis tigris</i> ..... | <i>Paragonimus westermani</i> (Kerb.). | Lungs.            |

##### ACANTHOCEPHALA.

|                                      |                                       |
|--------------------------------------|---------------------------------------|
| <i>Lemur brunneus</i> v. d. Hoeven   | <i>Echinorhynchus spirula</i> Olfers. |
| <i>Lemur coronatus</i> Gray .....    | <i>Echinorhynchus spirula</i> Olfers. |
| <i>Perodicticus potto</i> Bosman ... | <i>Echinorhynchus spirula</i> Olfers. |

##### PENTASTOMIDA.

|                                     |                                             |        |
|-------------------------------------|---------------------------------------------|--------|
| <i>Herpetodryas carinatus</i> ..... | <i>Porocephalus herpetodryados</i> , n. sp. |        |
| <i>Python</i> sp. ....              | <i>Porocephalus moniliformis</i> (Diesing). |        |
| <i>Zamenis mucosus</i> Boul. ....   | <i>Porocephalus crotali</i> (Humboldt).     | Lungs. |

##### NEMATODA.

|                                       |                                          |             |
|---------------------------------------|------------------------------------------|-------------|
| <i>Asio brachyotus</i> .....          | <i>Filaria foveata</i> Schneider.        | Orbit.      |
| <i>Centetes ecaudatus</i> .....       | <i>Spiroptera</i> sp.                    | Encapsuled. |
| <i>Ceryle torquata</i> .....          | <i>Filaria physalura</i> Brem.           | Stomach.    |
| <i>Helotarsus ecaudatus</i> .....     | <i>Ascaris angusticollis</i> Molin.      | Intestine.  |
| <i>Heterodon platyrhinus</i> .....    | <i>Angiostomum serpenticola</i> v. Lins. | Lungs.      |
| <i>Lepidopus caudatus</i> .....       | <i>Ascaris capsularia</i> Rud.           | Encapsuled. |
| <i>Quiscalus versicolor</i> .....     | <i>Filaria quiseali</i> v. Lins.         | Brain.      |
| <i>Troglodytes anthropopithecus</i> . | <i>Ascaris lumbricoides</i> L.           | Nostrils.   |

\* Proc. Zool. Soc. London, 1904, vol. ii. pt. i.: Abstract of the Proceedings of the Zoological Society of London, 1904, No. 7, p. 1.